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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/676,697	09/29/2000	John T. Holloway	40597/RJP/E264	1550
23363	7590	09/21/2004	EXAMINER	
CHRISTIE, PARKER & HALE, LLP			LEE, ANDREW CHUNG CHEUNG	
PO BOX 7068			ART UNIT	
PASADENA, CA 91109-7068			PAPER NUMBER	
			2664	

DATE MAILED: 09/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/676,697

Applicant(s)

HOLLOWAY ET AL.

Examiner

Andrew C Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09-22-2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) See Continuation Sheet is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,7,910,11,12,14,18,25,26,27,28,29,36,37,38,39,40,42,45,46,47,19, 51 - 68. is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>#2</u> . | 6) <input type="checkbox"/> Other: _____ |

Continuation of Disposition of Claims: Claims pending in the application are
1,7,910,11,12,14,18,25,26,27,28,29,36,37,38,39,40,42,45,46,47,19, 51 - 68,.

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a) because they fail to show in Fig. 4 "This HOLDOFF signal informing the distributed multiple access controller 206 entities to insert a block of slots (e.g., 16 slots) before starting the countdown of contention slots." as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

1. The disclosure is objected to because of the following informalities:
 - Page 1 of the specification, the names of Applicants should be deleted.
 - Page 14, line 5, there is one extra period after signal. It should be deleted.
 - Claim 47 on Page 8 of Preliminary Amendment (September 29, 2000), the Claim 47 refers to Claim 34, while Claim 34 is deleted. The Office requests the Applicant for further verification.

Appropriate correction is required.

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: Page 12 of Claim 67 (new), the claimed subject matter "one subsidiary collision resolution signal (lines 3 – 4; line 5)" and the claimed subject matter "subsidiary signal slots (lines 6 – 7)." are not disclosed in the specification. Page 12 of Claim 68 (new), the claimed subject matter "subsidiary signal slots (line 2)" and the claimed subject matter "one subsidiary collision resolution signal (lines 3 – 4)." are not disclosed in the specification.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claim 67 (new) is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Page 12 of Claim 67 (new), the claimed subject matter "one subsidiary collision resolution signal (lines 3 – 4; line 5)" and the claimed subject matter "subsidiary signal slots (lines 6 – 7)." are not disclosed in the specification. The original disclosure fails to specify "one subsidiary collision resolution signal " and "subsidiary signal slots " are now claimed. The "one subsidiary collision resolution signal " and "subsidiary signal slots " are considered to be new matters.

5. Claim 68 (new) is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Page 12 of Claim 68 (new), the claimed subject matter "subsidiary signal slots (line 2)" and the claimed subject matter "one subsidiary collision resolution signal (lines 3 – 4)." are not disclosed in the specification. The original disclosure fails to specify "subsidiary signal slots" and "subsidiary collision resolution signals" are now claimed. The "subsidiary signal slots " and "one subsidiary collision resolution signals" are considered to be new matters.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1, 25, 29, 58, 7, 59, 10, 38, 61, 18, 45, 65, 19, 46, 66, 26, 36, 52, 54, 56 are rejected under 35 U.S.C. 102(e) as being anticipated by Krishna et al. (U.S. Patent No. 5822538).

Regarding Claims 1(amended), 25 (amended), 29 (amended), 58 (new), Krishna et al. discloses the limitation of a packet-switched multiple-access network system having a shared communication channel connecting a plurality of stations (column 1, lines 13 – 17), each station comprising: a network interface, the network interface transmitting packets to the shared communication channel and receiving packets from the shared communication channel (column 2, lines 31 – 32; lines 40 – 45); a carrier sense for sensing whether the shared communication channel is in use and or preventing transmissions by the station when the shared communication channel is in use (column 1, lines 22 – 30); a collision detect for detecting the occurrence of a collision between a first transmission by the station and a second transmission on the shared communication channel (column 1, lines 27 – 30), and for causing a collision notification signal to be transmitted to the shared communication channel by the station

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when a collision is detected (column 1, lines 30 – 31); a slot timer for dividing a time period following successful completion of a transmission on the shared communication channel into a plurality of contention slots in order of priority (column 4, lines 39 – 43; column 7, lines 3 – 13); a controller for monitoring a priority of a data packet awaiting transmission and for delaying transmission of the data packet awaiting transmission until a contention slot corresponding to the priority of the data packet (column 4, lines 35 – 39; column 5, lines 15 – 21); wherein, when the station detects a collision of the data packet in a contention slot, the station enters a contention protocol to resolve the collision between contending stations for that contention slot (column 5, lines 40 – 45); and wherein, when the station receives a collision notification signal from the shared communication channel (column 5, lines 17 – 18) and the station was not involved in the collision, the station reduces the priority of the data packet awaiting transmission so as to withhold transmission until completion of the contention protocol between contending stations (column 5, lines 18 – 21).

Regarding Claim 7(amended), 59 (new), Krishna et al. discloses the limitation of the contention protocol includes dividing a time interval following a collision into a plurality of signal slots (column 4, lines 64 – 66; column 6, line 76; column 7, lines 1 - 13).

Regarding Claims 10 (amended), 38 (amended), 61 (new), Krishna et al. discloses the limitation of each contending station which has entered the contention protocol pseudo-randomly selects one of the plurality of signal slots (Abstract, lines 6 –

9), and signals that selection by transmitting a signal onto the shared communication channel in the selected signal slot (column 1, lines 32 – 35).

Regarding Claim 18 (amended), 45 (amended), 65 (new), Krishna et al. discloses the limitation of the collision notification signal has a duration of transmission interval that is distinguishable from the range of transmission intervals used by non-colliding transmissions (column 1, lines 39 – 42; Abstract, lines 9 –14).

Regarding Claim 19, 46 (amended), 66 (new), Krishna et al. discloses the limitation of the first station simulates a collision by forcing its transmission to have a duration that falls within the predetermined interval defined for collisions (column 2, lines 48 – 54).

Regarding Claim 26 (amended), Krishna et al. discloses the limitation of the channel signal wherein the collision resolution signal is used to share information between stations used for collision resolution (column 1, lines 22 – 31).

Regarding Claim 36 (amended), Krishna et al. discloses the limitation of the signal slots are used for signaling opportunities for the first station to share information with other stations which are connected to the channel, used for the contention protocol (column 1, lines 25 – 31).

Regarding Claim 52 (new), Krishna et al. discloses the limitation of the contention protocol farther including dividing a time period following the signal slots into a plurality of contention slots arranged in order of priority (column 4, lines 39 – 43; column 7, lines 3 – 13).

Regarding Claim 54 (new), 56 (new), Krishna et al. discloses the limitation of the carrier wave signal wherein a time period following the signal slots is divided into a plurality of contentions slots arranged in order of priority (column 1, lines 51 – 58).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 9, 37, 60, 68, 11, 39, 62, 12, 40, 63, 14, 42, 64, 27, 28, 47, 51, 55, 53, 57, 63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krishna et al. (U.S. Patent No. 5822538) in view of Bisdikian (U.S. Patent No. 6181687 B1).

Regarding Claims 9 (amended), 37 (amended), 60 (new), 68 (new), Krishna et al. discloses the limitation of the contention protocol includes dividing a time interval following a collision into a plurality of signal slots. Krishna et al. fails to disclose the

signal slots are used for signaling opportunities for contending stations to share information for the contention protocol implemented using a tree or stack-based collision resolution technique. Bisdikian discloses the signal slots are used for signaling opportunities for contending stations to share information for the contention protocol implemented using a tree or stack-based collision resolution technique (Abstract, lines 1 – 3; column 4, lines 66 – 67). It would have been obvious to modify Krishna et al. to include a the signal slots are used for signaling opportunities for contending stations to share information for the contention protocol implemented using a tree or stack-based collision resolution technique such as that taught by Bisdikian in order to further increase the MAC protocol efficiency and to increase the flexibility of the system operator to dynamically assign time intervals for contention-prone and contention-free transmissions.

Regarding Claims 11 (amended), 39 (amended), 62 (new), Krishna et al. discloses the limitation of the contention protocol includes dividing a time interval following a collision into a plurality of signal slots (column 4, lines 64 – 66; column 6, line 76; column 7, lines 1 - 13). Krishna et al. fails to disclose the limitation of the controller for monitoring the priority of the data packet awaiting transmission further comprising: a first stack that indicates a priority level of contending stations; a second stack that indicates the priority of the data packet awaiting transmission; and control logic for incrementing and decrementing the second stack based on at least one of: (a) a carrier sense signal; (b) a collision detect signal; (c) a collision notification signal; and (d) a transmitted signal in a signal slot. Bisdikian discloses the limitation of the controller for

monitoring the priority of the data packet awaiting transmission (column 6, lines 42 – 46) further comprising: a first stack that indicates a priority level of contending stations (column 5, lines 65 - 66); a second stack that indicates the priority of the data packet awaiting transmission (column 5, line 67; column 6, line 1); and control logic for incrementing and decrementing the second stack based on at least one of: (a) a carrier sense signal; (b) a collision detect signal; (c) a collision notification signal; and (d) a transmitted signal in a signal slot (column 8, lines 22 – 23). It would have been obvious to modify Krishna et al. to include the controller for monitoring the priority of the data packet awaiting transmission further comprising: a first stack that indicates a priority level of contending stations; a second stack that indicates the priority of the data packet awaiting transmission; and control logic for incrementing and decrementing the second stack based on at least one of: (a) a carrier sense signal; (b) a collision detect signal; (c) a collision notification signal; and (d) a transmitted signal in a signal slot such as that taught by Bisdikian in order to further increase the MAC protocol efficiency and to increase the flexibility of the system operator to dynamically assign time intervals for contention-prone and contention-free transmissions.

Regarding Claim 12 (amended), 40 (amended), 63 (new), Krishna et al. discloses the limitation of the contention protocol includes dividing a time interval following a collision into a plurality of signal slots (column 4, lines 64 – 66; column 6, line 76; column 7, lines 1 - 13). Krishna et al. fails to disclose the first stack is used to initialize the second stack when the station has prepared a new packet for transmission. Bisdikian discloses the limitation of the first stack is used to initialize the second stack

when the station has prepared a new packet for transmission (column 6, lines 33 – 37). It would have been obvious to modify Krishna et al. to include the first stack is used to initialize the second stack when the station has prepared a new packet for transmission as that taught by Bisdikian in order to further increase the MAC protocol efficiency and to increase the flexibility of the system operator to dynamically assign time intervals for contention-prone and contention-free transmissions.

Regarding Claim 14 (amended), 42 (amended), 64 (new), Krishna et al. discloses the limitation of the contention protocol includes dividing a time interval following a collision into a plurality of signal slots. Krishna et al. fails to disclose a pattern of selection of signal slots by a station in the contention protocol conveying side-band signaling information to other stations, whereby the selection of signal slots is used to specify a subordinate level of priority within the priority level associated with the contention protocol (Fig. 6, column 15, lines 21 – 26). It would have been obvious to modify Krishna et al. to include a pattern of selection of signal slots by a station in the contention protocol conveying side-band signaling information to other stations, whereby the selection of signal slots is used to specify a subordinate level of priority within the priority level associated with the contention protocol as that taught by Bisdikian in order to further increase the MAC protocol efficiency and to increase the flexibility of the system operator to dynamically assign time intervals for contention-prone and contention-free transmissions.

Regarding Claims 27 (amended), Krishna et al. discloses the limitation of the contention protocol includes dividing a time interval following a collision into a plurality of signal slots. Krishna et al. fails to disclose the channel comprising: side-band signaling at the MAC layer, the side-band signaling providing information for the PHY (physical) layer; and a deterministic label indicator slot for indicating that a pattern of votes by a station in the signal slots is the result of the station intending to convey side-band signaling information for the PHY layer. Bisdikian discloses the limitation of the channel comprising: side-band signaling at the MAC layer, the side-band signaling providing information for the PHY (physical) layer (Fig. 6, column 16, lines 6 – 7); and a deterministic label indicator slot for indicating that a pattern of votes by a station in the signal slots is the result of the station intending to convey side-band signaling information for the PHY layer (column 15, lines 50 – 55). It would have been obvious to modify Krishna et al. to include the channel comprising: side-band signaling at the MAC layer, the side-band signaling providing information for the PHY (physical) layer; and a deterministic label indicator slot for indicating that a pattern of votes by a station in the signal slots is the result of the station intending to convey side-band signaling information for the PHY layer as that taught by Bisdikian in order to further increase the MAC protocol efficiency and to increase the flexibility of the system operator to dynamically assign time intervals for contention-prone and contention-free transmissions.

Regarding Claims 28 (amended), 47 (amended), Krishna et al. discloses the limitation of the contention protocol includes dividing a time interval following a collision

into a plurality of signal slots. Krishna et al. fails to disclose the channel signal comprising: a HOLDOFF period between the plurality of signal slots and the plurality of contention slots, the HOLDOFF period being used to suspend the collision resolution between contending stations for a predetermined time interval such that the predetermined time interval can be used for access by a third station that is not executing the collision resolution protocol. Bisdikian discloses the limitation of the channel signal comprising: a HOLDOFF period between the plurality of signal slots and the plurality of contention slots (column 21, lines 30 – 33; column 23, lines 22 – 30), the HOLDOFF period being used to suspend the collision resolution between contending stations for a predetermined time interval such that the predetermined time interval can be used for access by a third station that is not executing the collision resolution protocol (column 22, lines 40 – 46). It would have been obvious to modify Krishna et al. to include the channel signal comprising: a HOLDOFF period between the plurality of signal slots and the plurality of contention slots, the HOLDOFF period being used to suspend the collision resolution between contending stations for a predetermined time interval such that the predetermined time interval can be used for access by a third station that is not executing the collision resolution protocol as that taught by Bisdikian in order to further increase the MAC protocol efficiency and to increase the flexibility of the system operator to dynamically assign time intervals for contention-prone and contention-free transmissions.

Regarding Claim 51 (new), 55 (new), Krishna et al. discloses the limitation of a packet-switched multiple-access network system having a shared communication

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channel connecting a plurality of stations (column 1, lines 13 – 17), Krishna et al. fails to disclose a collision resolution in which at least one contending station reducing a priority of transmission to allow a second contending station to transmit without collision, all non-contending stations reducing a priority of transmission to allow the at least one contending station to transmit without collision following completion of transmission by the second contending station. Bisdikian discloses the limitation of a collision resolution in which at least one contending station reducing a priority of transmission to allow a second contending station to transmit without collision (Fig. 4 column 10, lines 45 –55), all non-contending stations reducing a priority of transmission to allow the at least one contending station to transmit without collision following completion of transmission by the second contending station (column 11, line 67; column 12, lines 1 – 5). It would have been obvious to modify Krishna et al. to include a collision resolution in which at least one contending station reduces a priority of transmission to allow a second contending station to transmit without collision, all non-contending stations reduce a priority of transmission to allow the at least one contending station to transmit without collision following completion of transmission by the second contending station as that taught by Bisdikian in order to further increase the MAC protocol efficiency and to increase the flexibility of the system operator to dynamically assign time intervals for contention-prone and contention-free transmissions.

Regarding Claim 53 (new), 57 (new), 67 (new), Krishna et al. discloses the limitation of a packet-switched multiple-access network system having a shared

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communication channel connecting a plurality of stations (column 1, lines 13 – 17).

Krishna et al. fails to disclose the limitation of the system upon a collision within a signal slot of signals transmitted by a sub-set of the contending stations, each of the sub-set of contending stations transmits a collision notification signal and recommences a contention protocol, and wherein each contending station not in the sub-set of contending stations reduces the priority of the data packet awaiting transmission so as to withhold transmission until completion of the recommenced contention protocol between the sub-set of contending stations. Bisdikian discloses the limitation of the system upon a collision within a signal slot of signals transmitted by a sub-set of the contending stations (column 20, lines 4 – 8), each of the sub-set of contending stations transmits a collision notification signal and recommences a contention protocol (column 16, lines 66 – 67; column 17, line 1), and wherein each contending station not in the sub-set of contending stations reduces the priority of the data packet awaiting transmission so as to withhold transmission until completion of the recommenced contention protocol between the sub-set of contending stations (column 18, lines 62 – 66; column 19, lines 18 – 21). It would have been obvious to modify Krishna et al. to include the system upon a collision within a signal slot of signals transmitted by a sub-set of the contending stations, each of the sub-set of contending stations transmits a collision notification signal and recommences a contention protocol, and wherein each contending station not in the sub-set of contending stations reduces the priority of the data packet awaiting Transmission so as to withhold transmission until completion of the recommenced contention protocol between the sub-set of contending stations as that

taught by Bisdikian in order to further increase the MAC protocol efficiency and to increase the flexibility of the system operator to dynamically assign time intervals for contention-prone and contention-free transmissions.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew C Lee whose telephone number is (571) 272-3131. The examiner can normally be reached on Monday through Friday from 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin can be reached on (571) 272-3134. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ACL 14 September 2004


Ajit Patel
Primary Examiner